Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)

2. (Previously presented) A system according to claim 17, wherein the transmitter and receiver each further include pass band filters to isolate desired sub-band frequencies.

3. (Currently amended) A system according to claim 2, wherein the transmitter has a modulator to process each sub-band separately prior to implementation of the IFFT and up-sampling means in advance of the pass band filter to up-sample each sub-band signal to the desired sampling rate, the receiver having corresponding down-sampling means and a corresponding demodulator.

4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)

10. (Previously presented) A method according to claim 30, further including, at each of the transmitter and the receiver, the step of using pass band filters to isolate desired sub-band frequencies.

11. (Previously presented) A method according to claim 30, wherein said IFFT and FFT are implemented for only a single side band of said sub-bands.

12. (Previously presented) A method according to claim 11, wherein a single side band filter is used.

13. (Previously presented) A method according to claim 10, including the step of using a modulator to process each sub-band separately prior to implementation of the FFT.

14. (Previously presented) A method according to claim 13, wherein, before said filtering, each sub-band signal is up-sampled to the desired sampling rate.

15. (Previously presented) A method according to claim 30, wherein, when the method is used in a frequency division multiplexing application, the bandwidth varies from one subband to another, with a corresponding variation of size of said plurality of different FFTs.

16. (Previously presented) A method according to claim 15, wherein up and down sampling rates also vary correspondingly.

17. (Currently amended) A broad bandwidth, high data rate communications system comprising a transmitter employing Inverse Fast Fourier Transform ~~comprising a transmitter~~ and a receiver employing Fast Fourier Transform,

the transmitter having means for dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band ~~signal~~ signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and means for performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals to the receiver;

the receiver having means for receiving the combined transformed sub-band signals, separating the sub-band signals and performing forward Fast Fourier Transform thereupon individually using, for each transformed sub-band signal, a respective one of a plurality of different FFTs corresponding to those in the transmitter.

18. (Previously presented) A system according to claim 3, wherein the transmitter and receiver are configured for transmitting and receiving, respectively, Discrete Multi-tone (DMT) signals via a Digital Subscriber Line (DSL).

19. (Previously presented) A system according to claim 17, wherein the transmitter and receiver are configured for use with a Very high rate Digital Subscriber Line (VDSL).

20. (Currently amended) A transmitter for use in a broad bandwidth, high data rate communications system employing Fast Fourier Transform, the transmitter having means for dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band ~~signal~~ signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and means for performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals.

21. (Previously presented) A transmitter according to claim 20, further including pass band filters to isolate desired sub-band frequencies.

22. (Previously presented) A transmitter according to claim 21, having a modulator to process each sub-band separately prior to implementation of the IFFT and up-sampling means in advance of the pass band filters to up-sample each sub-band signal to the desired sampling rate.

23. (Previously presented) A transmitter according to claim 22, configured for transmitting Discrete Multi-tone (DMT) signals via a Digital Subscriber Line (DSL).

24. (Previously presented) A transmitter as defined in claim 20, configured for use with a Very high rate Digital Subscriber Line (VDSL).

25. (Currently amended) A receiver for use in a broad bandwidth, high data rate communications system, in which transmitted signals are divided into sub-bands and converted using, for each sub-band signal, a respective one of a plurality of Inverse Fast Fourier Transforms (IFFTs), the receiver having:

means for receiving and separating a plurality of sub-band signals in said corresponding plurality of sub-bands;

and means for performing Fast Fourier Transform upon the received sub-band signals using, for each sub-band signal, a respective one of a plurality of different FFTs corresponding to the IFFTs.

26. (Previously presented) A receiver according to claim 25, wherein the receiver further includes pass band filters to isolate desired sub-band frequencies.

27. (Previously presented) A receiver according to claim 26, for use with received sub-band signals that have been modulated separately prior to implementation of the IFFT and up-sampled, the receiver having corresponding down-sampling means and a corresponding demodulator.

28. (Previously presented) A receiver according to claim 27, configured for receiving said sub-band signals in the form of Discrete Multi-tone (DMT) signals via a Digital Subscriber Line (DSL).

29. (Previously presented) A receiver according to claim 25, configured for use with a Very high rate Digital Subscriber Line (VDSL).

30. (Currently Amended) A method of implementing Inverse Fast Fourier Transform and Fast Fourier Transform (FFT) in a broad bandwidth, high data rate communications system comprising a transmitter and a receiver, the method comprising the steps of:

at the transmitter,

dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band ~~signal~~ signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and

performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals to the receiver; and

at the receiver,

receiving the combined transformed sub-band signals, separating the sub-band signals and performing forward Fast Fourier Transform FFT upon the received transformed sub-band signals individually using, for each sub-band signal, a respective one of a plurality of different FFTs corresponding to those in the transmitter.

31. (Currently amended) A method of processing signals for transmission by a transmitter in a broad bandwidth, high data rate communications system employing Inverse Fast Fourier Transform IFFT, the method comprising the steps of dividing the bandwidth into a plurality of sub-bands each for a respective one of a corresponding plurality of sub-band ~~signal~~ signals, each of the sub-band signals being modulated with a respective portion of input data to be transmitted; and performing Inverse Fast Fourier Transform (IFFT) upon the sub-band signals using, for each sub-band signal, a respective one of a plurality of different IFFTs, combining the transformed sub-band signals and transmitting the combined transformed signals.

32. (Previously presented) A method according to claim 31, wherein pass band filters are used to isolate desired sub-band frequencies.

33. (Previously presented) A method according to claim 31, wherein a modulator is used to process each sub-band separately prior to implementation of the IFFT and each sub-band signal is up-sampled to the desired sampling rate prior to passband filtering.

34. (Previously presented) A method according to claim 31, further comprising the step of transmitting the transformed sub-band signals as Discrete Multi-tone (DMT) signals via a Digital Subscriber Line (DSL).

35. (Previously presented) A method according to claim 34, wherein the transformed sub-band signals are transmitted via a Very high rate Digital Subscriber Line (VDSL).

36. (Currently amended) A method of processing received signals in a receiver in a broad bandwidth, high data rate communications system employing Fast Fourier Transform (FFT), in which transmitted signals are divided into sub-bands and converted using, for each sub-band signal, a respective one of a plurality of Inverse Fast Fourier Transforms (IFFTs), the receiving method comprising the steps of:

receiving a plurality of said sub-band signals in a corresponding plurality of sub-bands, separating the subband signals and performing Fast Fourier Transform upon the received sub-band signals individually using, for each sub-band signal, a respective one of a plurality of different FFTs corresponding to the IFFTs.

37. (Previously presented) A method according to claim 36, wherein the received signal is filtered using pass band filters to isolate desired sub-band frequencies.

38. (Previously presented) A method according to claim 36, for processing received sub-band signals that have been modulated separately prior to implementation of the IFFT and up-sampled, the method comprising the steps of down-sampling and demodulating the received sub-band signals using a complementary demodulator and down-sampling rate.

39. (Previously presented) A method according to claim 36, wherein said sub-band signals are received in the form of Discrete Multi-tone (DMT) signals via a Digital Subscriber Line (DSL).

40. (Previously presented) A method according to claim 39, wherein said sub-band signals are received via a Very high rate Digital Subscriber Line (VDSL).